

## REMARKS

### **I. Introduction**

Claims 1-17 are pending in the present application after addition of new claim 17. Claims 1, 2, 6, 9, 12 and 13 have been rejected. The Examiner has objected to claims 3-5, 7-8, 10-11 and 14-16. Applicants have amended claims 1, 3, 6, 7, 9, 10, 12 and 14.

### **II. Rejection of Claims 1-2, 6, 9 and 12-13 under 35 U.S.C. § 103(a)**

Claims 1-2, 6, 9 and 12-13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,095,118 ("Klinger") in view of U.S. Patent No. 6,694,950 ("Djordjevic"). Applicants respectfully submit that the rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references, and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. M.P.E.P. §2143. In addition, as clearly indicated by the Supreme Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. See KSR Int'l Co. v. Teleflex, Inc., 82 U.S.P.Q.2d 1385 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Id., at 1396. To the extent that the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art." (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Amended claim 1 recites the following:

1. A method for operating an internal combustion engine having **a fuel pump with a single drive shaft**, . . . the fuel pump conveying fuel into at least one fuel-collection line, the fuel being subsequently conveyed to at least one combustion chamber via at least one fuel-injection device, the method comprising:

setting, by means of a **single valve device**, a quantity of the fuel conveyed by the fuel pump into the fuel-collection line;

wherein the single valve device is configured to selectively connect a discharge side of the fuel pump to a low-pressure region of the fuel pump, and wherein the single valve device is configured to selectively disconnect the discharge side from the low-pressure region, and wherein, **in supplying the quantity of fuel, a supply rate, defined as the number of supply phases of the fuel pump per rotation of the single drive shaft, is determined** as a function of at least one operating parameter of the internal combustion engine.

Independent claims 6, 9, 12 and 17 recite substantially similar limitations as the above-recited features of claim 1. In support of the rejection, the Examiner contends the following: a) “Djordjevic teaches a radial pump having three pump pistons”; b) “[t]he exact way the pumps are controlled is not disclosed, but the control is disclosed as varying with engine parameters”; and c) “[i]t would have been obvious to use the pump piston and spill valve arrangement of Djordjevic in the Klinger system since both systems were feeding similar high-pressure injection engines.” However, Applicants submit that the overall teachings of Djordjevic and Klinger simply do not support the Examiner’s asserted combination, as explained in detail below.

As noted above, amended claim 1 recites that the fuel pump has a single drive shaft and a single valve device for setting a quantity of the fuel. This single valve is activated and deactivated a number of times during one rotation of the single drive shaft in order to realize the desired number of supply phases of the fuel pump per rotation of the single drive shaft, i.e., by using the method according to the invention, it is possible to select without any restriction the number and the timing of supply phases within one rotation of the drive shaft. The method according to the present invention may be applied to a fuel pump having only one single cylinder but a drive shaft having a plurality of cams, and the present invention may be applied to fuel pumps having two or more cylinders having overlapping supply strokes. In contrast, the claimed

features and advantages of amended claim 1 simply could not be obtained by combining the teachings of Djordjevic and Klinger. One of ordinary skill in the art simply would not use the pump piston and spill valve arrangement of Djordjevic in the Klinger system, particularly since the Klinger system teaches a fuel pump having two drive shafts whereas Djordjevic teaches a fuel pump having one single drive shaft. Even if one assumes that it would be logical in a fuel pump having two drive shafts (thus providing actually two separate fuel pumps) to shut down one of the two fuel pumps when only a small quantity of fuel is to be pumped, this assumption clearly does not apply to the fuel pump of Djordjevic which has a single drive shaft. Furthermore, even if one assumes that there is some motivation to combine the teachings of Djordjevic and Klinger (with which assumption Applicants do not agree), the logical resulting combination would be merely a three-cylinder fuel pump, each cylinder being provided with a separate control valve to shut down the respective cylinder.

For at least the foregoing reasons, independent claims 1, 6, 9, 12 and 17, as well as their dependent claims 2 and 13, are allowable over Klinger and Djordjevic.

### **III. Allowable Subject Matter**

In response to the Examiner's statement that claims 3-5, 7-8, 10-11 and 14-16 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, Applicants have amended claims 3, 7, 10 and 14 to be in independent form including all of the limitations of the base claim and any intervening claims. Accordingly, claims 3, 7, 10 and 14, as well as their dependent claims 4-5, 8, 11 and 15-16, are now in allowable condition.

### **IV. Conclusion**

For at least the foregoing reasons, it is respectfully submitted that all pending claims of the present application are in allowable condition. Prompt reconsideration and allowance of the application are respectfully requested.

Respectfully submitted,

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